

*working
for
clean
rivers*

ANNUAL REPORT 2007 - 2008

**Portland
Watershed
Management
Plan**



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PORTLAND WATERSHED MANAGEMENT PLAN ANNUAL REPORT 2007 - 2008

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introduction

The PWMP annual report and the River Renaissance State of the River (SOTR) annual report are both integrated into regional planning for the health of the Willamette River. The SOTR report provides a comprehensive assessment of citywide efforts to reclaim the Willamette River as a clean and healthy river, interconnecting a prosperous harbor and vibrant river-front communities. The PWMP annual report includes an assessment of the more detailed watershed goals and objectives that help achieve the “clean and healthy” scope of the River Renaissance Program. While the reports serve different purposes and gauge progress differently, they are intended to be complementary.

Portland Watershed Management Plan 2007-08

This report summarizes the work accomplished under the Portland Watershed Management Plan (PWMP) during 2007-2008. The city developed the PWMP in 2005 to provide goals for improving water quality and watershed health, and to protect and restore natural resources. The city reports annually on progress made towards these goals through innovative and collaborative projects.

Watershed Plan Context

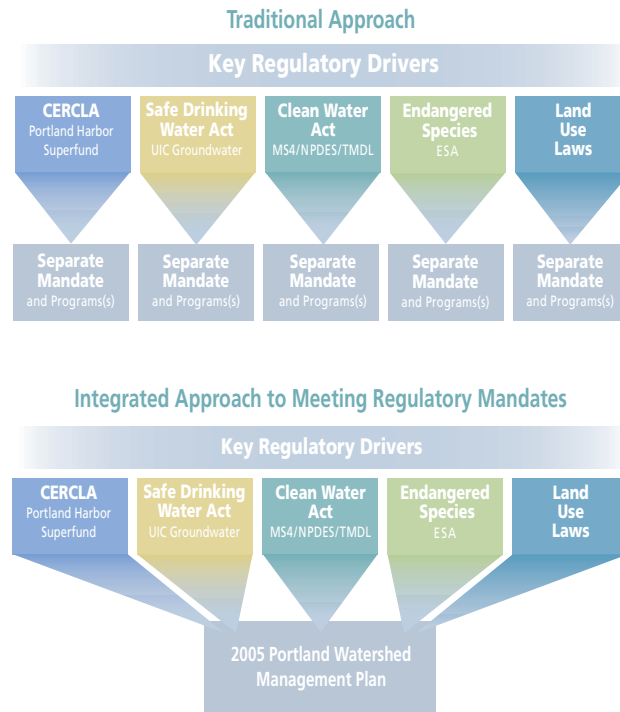
In the last few decades, Portlanders have consistently stated that they want healthy watersheds, rivers and streams, while regulatory mandates have increased pressure to address growing ecological problems. As Portland grows, it will be possible to protect and restore water quality, habitat and prevent future urban problems through the watershed approach. Solutions which promote healthy watersheds while addressing other infrastructure objectives are often the most cost-effective and publicly acceptable.

This is not idealized, utopian thinking, but recognition that old approaches either erode fundamental environmental functions over time, or present a solution focused only on environmental function at a cost that society is often unwilling or unable to bear.

The city defines a healthy urban watershed as one where hydrology, water quality, and habitat are suitable to protect human health, maintain viable watershed and other ecological functions and processes, and support self-sustaining populations of native fish and wildlife species. Improving watershed health is truly a citywide effort. As a municipal government, the City of Portland is responsible for managing city operations in a manner that sustains livability and economy while protecting the viability of natural resources.

In 2005, the city developed the PWMP to guide its efforts to improve water quality and watershed health, and protect and





restore natural resources. The PWMP is based on the “watershed approach”. The watershed approach includes using the four watershed health goals to guide actions to protect and restore our urban creeks, rivers and sloughs and upland habitats. The watershed approach also guides how the city does ongoing work in developing and maintaining infrastructure (storm and sanitary sewer systems, roads, water supply system, etc.), property redevelopment, and open space. Using the watershed approach means that the city conducts activities - such as infrastructure construction and maintenance, the redevelopment of areas such as the South Waterfront, or construction of parks - in a manner that protects and enhances watershed health. Rather than focusing separately on single issues or regulatory requirements, such as water quality protection or contaminated sediment cleanup, applying the watershed approach means considering natural system health as we plan and build any urban improvement.

The watershed approach reflects and implements core city values. In addition to protecting and improving watershed

functions such as providing clean water and habitat, these values include improved public safety, economic vitality and community stewardship. This approach relies on integrating the activities of multiple city bureaus, and maximizes the use of limited resources by looking for solutions that meet multiple objectives.

The city also works with watershed councils, community groups, business organizations and other jurisdictions in Portland and upstream of Portland’s watersheds. This collaborative approach enables entities to share resources and combine efforts, and address watershed issues that require a comprehensive approach.

GREY to GREEN

A Comprehensive Strategy to Boost Watershed Actions

Now in the third year since the PWMP adoption by City Council, the policies born out of the watershed approach have been set in motion, and the city advances towards an aggressive implementation phase to improve watershed health. The Grey to Green Initiative embodies the watershed approach in action: over the next five years, the city will invest over \$40M to augment existing watershed work, boosting and accelerating more sustainable “green” solutions for infrastructure management, urban redevelopment,

natural resource protection, and community livability that consider watershed health. Much of 2008 was used to prepare for this step forward, including expansion of city staff and increased coordination among city bureaus, particularly Environmental Services, Transportation, Parks and Recreation, and Development Services. This accelerated investment in green stormwater management systems will promote healthy watersheds and clean rivers, and extend the viability of our existing infrastructure.

Role of the PWMP Annual Report

The PMWP Annual Report:

- Documents progress annually toward achieving watershed protection and improvement, as defined by the goals and objectives identified in the PWMP;
- Summarizes important milestones achieved in that year; and
- Highlights future implementation priorities to illustrate how the city will continue to work toward watershed health objectives.

In addition to this annual report, the city completes reporting requirements related to several ongoing activities, including:

- Individual stormwater management reports required by permits issued to the city by the Oregon Department of Environmental Quality and U.S. Environmental Protection Agency (EPA); and
- Data and conditions reports completed for each watershed to provide current information for ongoing city planning and design activities.

The PWMP report is arranged to show a broad range of city activities that are using the watershed approach. The report is arranged in the following sections:

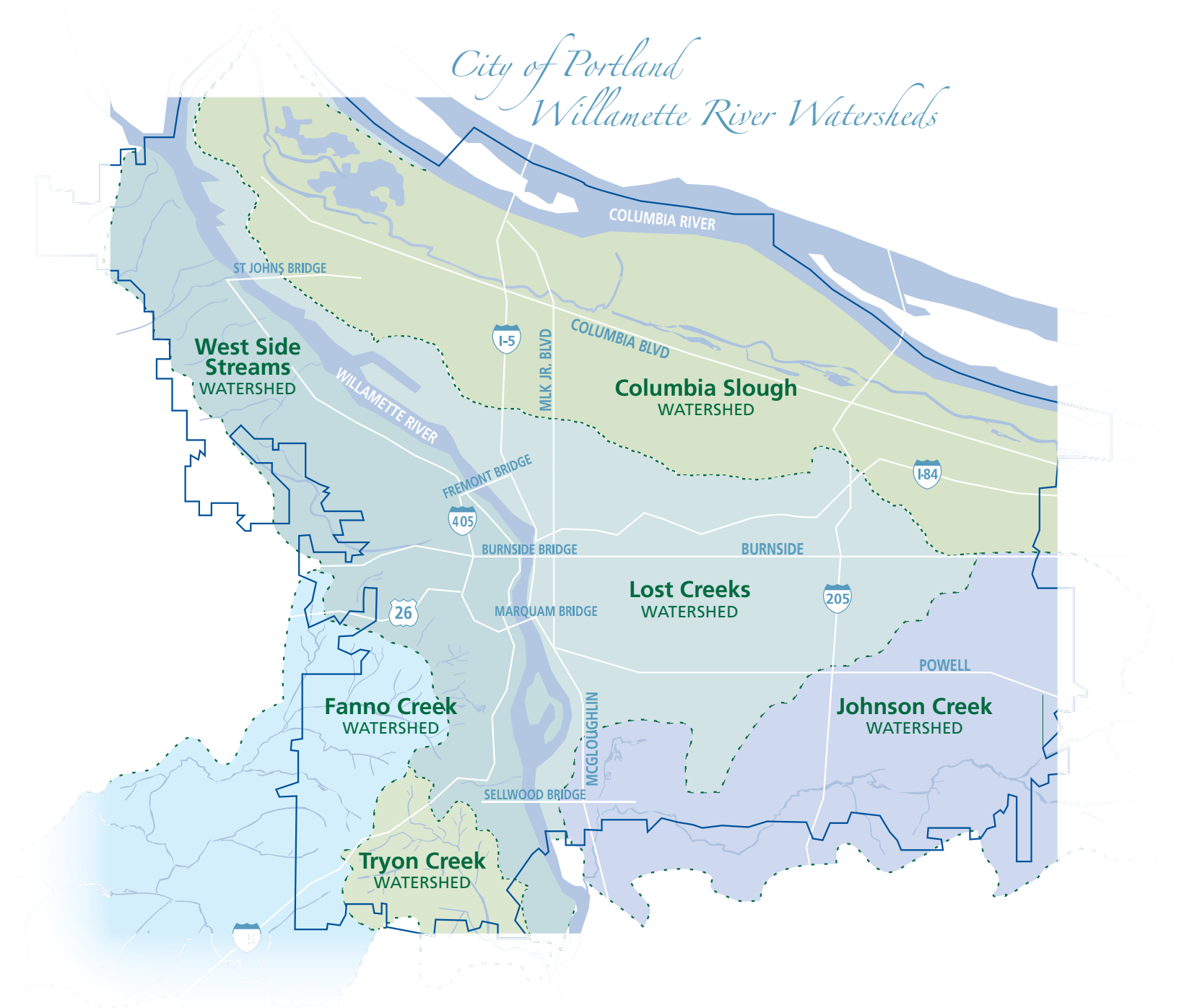
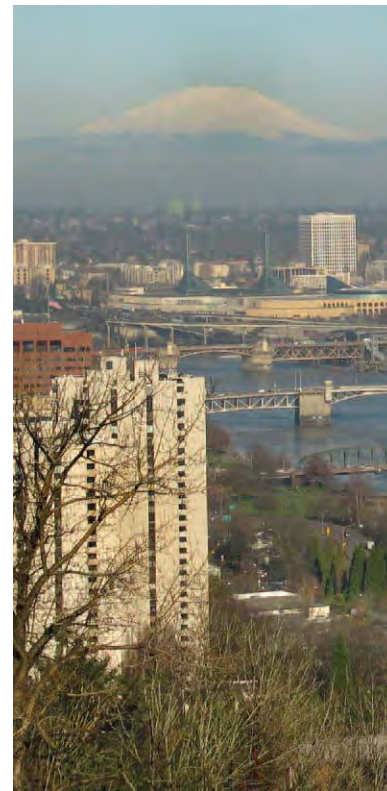
- The Watershed Strategy Implementation section illustrates examples of the watershed approach through each of the PWMP strategies.
- The Watersheds at a Glance section highlights how combinations of PWMP strategies are being used in each of Portland’s watersheds.
- The Tracking Progress section provides a summary of fiscal year accomplishments and how they contribute towards the PWMP goals and objectives.
- The Challenges and Recommendations section identifies ways we expect the plan to adapt, or need to adapt, over the next year.
- The Looking Forward section includes significant long-term goals that will continue to guide our present-day decision making.

Integrating Solutions
Breaking ground for a needed road or sewer repair can open the door for a concurrent sustainable stormwater project, reducing the amount of impervious surface in the watershed. Finding integrated solutions for these problems not only meets multiple objectives, but does so more efficiently towards a more sustainable result.

Overview

The PWMP identifies six strategies, or categories of actions that will help reach the PWMP goals to improve the hydrology, physical habitat, water quality, and biological communities of our five watersheds. Each strategy plays a unique role in a healthy and functioning watershed system, linking goals and objectives to actions. Watershed management strives to address root causes of problems rather than manage their symptoms, emphasizing a systems approach to fixing problems. Effort is applied on several fronts, using several approaches. Not unlike the human body that throughout its lifespan requires a range of treatments from rehabilitative surgery to good diet and exercise, the urban watershed requires actions throughout the system to address failures in watershed functions - such as protection of our highest value resources, new construction to fill in gaps, re-design, new operations and maintenance approaches, and building partnerships with citizens and businesses.

The city works to identify how resources are allocated to each strategy, and how actions are prioritized based on these resources. The watershed approach helps align multiple goals and objectives across city activities to achieve greater benefits through our actions. In this approach, watershed actions are not random; the strategies are the guiding principles that determine which and how actions are implemented. The following sections provide an overview of each strategy, and examples of collaborative actions carried out during the 2007-2008 reporting year.



“Improving watershed health is a citywide effort”

Performance Measures

Installed 304 green street facilities

Converted 103 linear feet of ditches to vegetated swales

Installed 394 private stormwater facilities

Over 791 million gallons of stormwater managed on site annually through the Clean River Rewards Program and the Sustainable Stormwater Management Program.

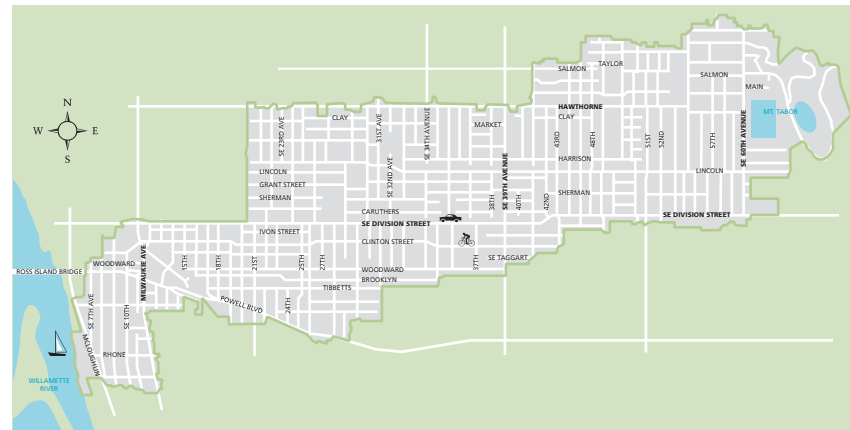
Strategy 1: Stormwater Management

Stormwater management is fundamental to improving hydrologic function and watershed health. Development creates streets, rooftops and other impervious surfaces that can increase the volume and velocity of stormwater runoff. Proper stormwater management controls runoff flow and protects property, infrastructure, and natural resources. Site design or retrofits of existing development that reduce impervious area can also reduce the amount of stormwater runoff. Ponds, oversized pipes, ecoroofs and swales can all reduce runoff, with varying costs and water quality and habitat benefits. The watershed approach is a call to integrate stormwater systems into the evolving urban framework in using the most cost-effective and beneficial designs so they not only improve air and water quality, but also consider bicycle and pedestrian safety, enhance livability and community aesthetics, provide wildlife corridors, and foster community watershed awareness.

Brooklyn Creek Basin Program

A great example of action integration is the Tabor to the River: Brooklyn Creek Basin Program. As a major component of the Grey to Green Initiative, hundreds of sewer and stormwater improvements are planned for Southeast Portland to control flooding and combined sewer overflows. The Brooklyn Creek Basin extends from the Willamette River to Mt. Tabor between SE Hawthorne and SE Powell boulevards, and covers about 2.3 square miles. This area was once home to a major creek that flowed freely from Mt. Tabor to the Willamette River. Long ago the city diverted this creek and many other free-flowing streams, into underground sewer pipes to make way for development.

The Brooklyn Creek Basin has a combined sewer system that collects wastewater from homes and businesses and stormwater runoff from streets in the same pipes. When it rains, these combined sewers fill to capacity and some of the wastewater and stormwater mixture overflows to the Willamette River. The Tabor to the River: Brooklyn Creek Basin Program will stop basement flooding, manage stormwater more naturally by allowing it to infiltrate into the ground where it falls, rather than running through an underground pipe to the Willamette River, and begin to restore the health of our watersheds. It will do this by repairing or replacing sewer lines, but also by installing over 500 curb extension swales and vegetated planters in the public right-of-way, as well as by planting over 4,000 new trees.



The large-scale effort in the Brooklyn Creek Basin requires the bureaus of Transportation, Water, Parks and Recreation, Development Services, and Environmental Services to align priorities, which were initiated when each of the bureaus participated in the Green Streets Cross Bureau team (see 2006-2007 PWMP Annual Report). This integrated approach to stormwater management will resolve long-standing problems in the basin and will save money. The estimated cost of tackling these problems with only traditional sewer pipe solutions is \$144 million. Adding sustainable, green stormwater management systems reduces the estimated cost to \$86 million and has the added benefit of enhancing water quality and watershed health. More information on this program is available at www.portlandonline.com/bes/tabortoriver.

1% for Green

As part of the 2007 City of Portland Green Street policy, City Council approved a fund that leverages sustainable stormwater improvements from right-of-way construction projects. When the city builds a project in the right-of-way that is not subject to on-site stormwater management requirements outlined in the Stormwater Manual, a percentage of that project's budget is set aside as part of the 1% for Green Fund. The 1% for Green Fund is available for city agencies or private developers to help with green street projects in Portland that manage stormwater, enhance livability, and provide other environmental benefits.

Tryon Headwaters

In summer 2007, Environmental Services and the Portland Development Commission completed a multiple objective watershed project on a three-acre multi-family development at the headwaters of Tryon Creek. The project included daylighting a piped stream, wetland enhancement in adjacent natural areas, and stormwater facilities to manage 100% of the development runoff.



Headwaters rain garden

Owens Corning

Environmental Services completed an innovative stormwater management project in partnership with Owens Corning, a roofing manufacturer in the Northwest Industrial area. This is a significant project because it manages stormwater onsite at a heavy industrial facility. Industrial areas are concentrated along the Willamette River and Columbia Slough, and often have high percentages of impervious surfaces due to large warehouses, parking and storage facilities, and adjacent transportation corridors. Providing alternate ways to manage stormwater runoff provides benefits such as increasing the longevity of area stormwater pipes, and providing cool recharge water to the river and the slough for fish and wildlife.



Owens Corning swale

Grey to Green: Ecoroof targets

There are over six acres of ecoroofs within the city of Portland, managing over six million gallons of stormwater per year. A new ecoroof grant and incentives program aims to generate capacity and ongoing interest to add 3 acres of ecoroofs in the next year and 43 acres in the next five years.

Green Street targets

Green Streets are vegetated curb extensions or street-side planters that collect stormwater runoff from streets. Portland already has 475 Green Streets - the Grey to Green Initiative will contribute to the funding of 138 additional Green Streets in 2008-2009 towards a total of 920 facilities in the next five years.

Performance Measures

390 acres treated for invasive species

104 acres of land planted with native vegetation

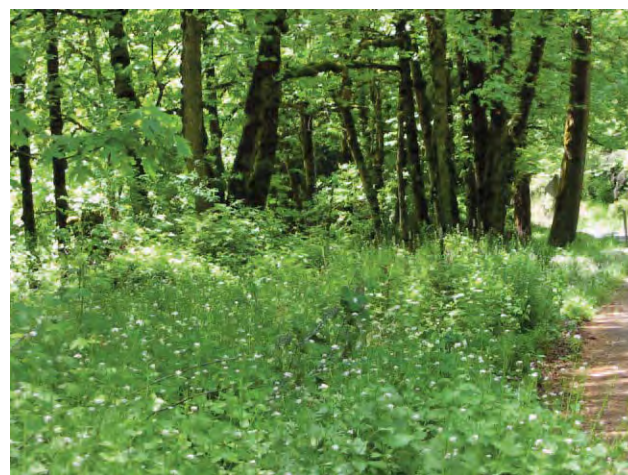
40,506 trees and shrubs planted
Aquatic and Terrestrial Enhancement Strategy

Strategy 2: Revegetation

Healthy watersheds consist of plant communities that are dominated by native vegetation, and have minimal invasive non-native species. A dense tree canopy provides numerous benefits within the urban environment, such as intercepting stormwater before it reaches the streets below. Vegetation provides a key role in absorbing stormwater and stabilizing soil to prevent erosion. When non-native invasive plants spread, they can threaten soil stability and increase erosion, reduce native habitat diversity, and diminish the hydrologic processes within the watershed. The PWMP revegetation strategy focuses on eradicating non-native invasive plants and establishing and maintaining native plant communities. The network of connected parks, natural areas, and open spaces permit habitat connectivity and which is key in providing adequate habitat to sustain biological communities within the urban framework. Below are some examples of how the city implemented actions in 2007-2008 to support this need.

Invasive Species Accomplishments

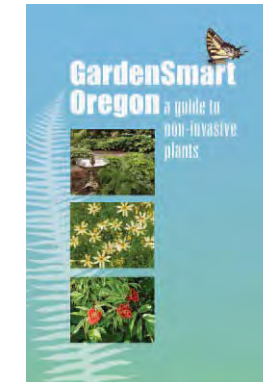
In November 2005, the city adopted a resolution to integrate invasive plant management into existing city programs. The policy identified invasive species as a citywide problem that would require interbureau collaboration, dedicated resources, and a long-term strategy to address. In 2007-2008, the city began evaluating and comparing existing programs with those at other agencies to identify gaps in vegetation management in Portland. City staff and stakeholders developed a strategy report that describes invasive plant management elements that should be added to existing city programs in order to detect and prevent outbreaks, maintain the condition of our natural areas, and remove invasive species from more heavily infested areas. In the next year Portland will be taking significant steps to integrate and implement this strategy citywide. More information about the Invasive Plant Management Program, including a link to the Invasive Plant Strategy, can be found at www.portlandonline.com/bes/invasives.



invasives Japanese knotweed (left) and garlic mustard (right)

GardenSmart Oregon Publication

One major element of the city's Invasive Plant Strategy is to coordinate with regional invasive plant management efforts. In May 2008, Environmental Services partnered with the Oregon Public Broadcasting Stop the Invasion campaign, the Nature Conservancy, Oregon State University, Oregon Association of Nurseries and many others to develop the GardenSmart Oregon Publication. The informative brochure is designed to give gardeners and plant enthusiasts a guide to invasive plants, as well as native plant alternatives. The brochure helps gardeners select native plant species instead of non-native, invasive plants. The brochure and additional information are available at www.portlandonline.com/bes/gardensmart.



Rocky Butte Invasive Species Control Project

The city began its largest invasive plant control project in spring 2008 on Rocky Butte in northeast Portland. Many of Rocky Butte's natural areas are overrun with non-native, invasive vegetation that displace desirable native vegetation, and damage wildlife habitat. The Rocky Butte Invasive Species Control Project will remove invasive plants and restore native vegetation on about 150 acres of Rocky Butte natural areas. The work will increase the variety and type of tree canopy and groundcovers, increase and preserve wildlife habitat, and eliminate invasive weeds that can fuel urban wildfires. Project partners include The Grotto, Oregon Department of Transportation, Oregon State Parks, Portland Parks & Recreation, Metro Parks and Greenspaces, City Bible Church and the Bureau of Environmental Services. The work will continue for the next five to ten years.

Grey to Green:

The city will work to eradicate invasive plant species, install native vegetation, and enhance the urban canopy. In 2007-2008, Environmental Services will develop a citywide inventory of key invasive plants, and implement the city's invasives control strategy, including early detection to keep invasives from getting a foothold. In five years, this work will lead to 840 acres of invasive species treatment as part of the early detection, rapid response approach. In addition, the city's Watershed Revegetation Program currently plants native vegetation on 70 acres of natural areas in a year. Grey to Green will maintain this level of effort for five years towards a five-year total of 350 acres. Finally, Grey to Green will support city staff and partnering community organizations such as Friends of Trees to plant 33,000 yard trees and 50,000 street trees in five years.

“managing invasive vegetation through coordinated programs and partnerships”

Performance Measures

6,775 linear feet of stream bank restored

14 acres of floodplain restored

232 acres of upland habitat enhanced

Strategy 3: Aquatic and Terrestrial Enhancement

Development and expansion are necessary for thriving urban areas, and the impacts affect our natural resources in both dramatic and incremental ways. Aquatic and terrestrial habitat areas require buffering and connectivity to function; by enhancing these areas we can repair degradation and improve watershed hydrology, water quality, and biodiversity. The watershed approach considers the impacts of urbanization on natural resources and helps minimize them. The approach places special emphasis on repairing and restoring degraded fish and wildlife habitats. Partnerships with other bureaus, agencies, tribes, associations, non-profits, educational institutions, local residents and businesses are critical to a successful effort. The following are significant accomplishments in that effort over the 2007-2008 reporting year.

Fish Monitoring and Recovery Planning

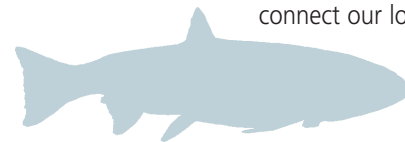
In 2008, Environmental Services' Science, Fish and Wildlife (SFW) Program and Watershed Services Group initiated a number of fish studies through the Oregon Department of Fish and Wildlife to determine how well Portland watersheds are protecting and recovering our native fish and wildlife. Although the studies are continuing well into 2009, there have already been a couple of notable highlights:

- In the Columbia Slough, salmon were documented in all accessible habitat.
- In 2002, the Oregon Department of Transportation replaced a culvert that blocked salmon passage into Miller Creek. This year, for the first time, salmon were found in Miller Creek as far upstream as Forest Park.
- Chinook were found in middle Johnson Creek where they haven't been seen for decades. The sampling also confirmed that there are large numbers of native fish in Johnson Creek, including rainbow trout.
- A U.S. Fish and Wildlife study funded in part by SFW, found Endangered Species Act listed coho in Tryon Creek above a nearly impassable culvert at Highway 43.

A new study is underway to survey how juvenile salmon are using shallow water habitat at the confluence of the Willamette and Columbia rivers. And for the first time, we are collecting genetic samples from all salmonids to start a genetic database for the City of Portland's watersheds. This information will confirm the significance of the Willamette and Columbia Rivers to life cycles of regionally protected threatened and endangered species, and thus connect our local restoration efforts to regional recovery planning.



fish monitoring



Terrestrial Ecology Enhancement Strategy

Due to their federal and state protection status, salmonids are often the focus of habitat protection and restoration. But there's a great need to place the same emphasis on terrestrial plant and animal species to keep them from consideration for threatened or endangered listing, and to re-establish healthy biological communities. In March 2006, the City Council called for the Terrestrial Ecology Enhancement Strategy (TEES) component of the PWMP. Since then, the TEES Advisory Group, representing multiple city bureaus, regional and federal agencies, local businesses, watershed councils, drainage districts, and environmental non-profits, has been working to develop a common body of information and priorities for conservation and restoration of terrestrial communities in a regional context.

In 2007-2008, the TEES Advisory Group identified Special Status Species, Habitats, and Species of Management Concern, and mapped key habitats, wildlife corridors, and gaps in the Portland area. Environmental Services established a database to catalog this information and other terrestrial ecology resources helpful to implementing the PWMP. TEES is being used to inform Environmental Services' project implementation (e.g., short-term project selection, monitoring strategy), the Grey to Green Initiative, Portland Parks and Recreation's planning and local bond measure acquisition decisions, and the Portland Plan project and Comprehensive Plan update, led by the Bureau of Planning. For the next 2-5 years, Environmental Services and other city bureaus will use TEES' work products to determine whether features can be added, or projects can be modified in some way, to benefit terrestrial wildlife and habitats.

Oaks Bottom Wildlife Refuge Natural Area

In 2007-2008, BES in partnership with Portland Parks and Recreation conducted bat monitoring and amphibian studies within the Oaks Bottom Wildlife Refuge natural area. Several Special Status Species, including red legged frogs, breed in the natural area. Creation of additional wetland / amphibian habitat took place in the northern end of the natural area with money from an Oregon Watershed Enhancement Board grant. This work complements the revegetation work that they completed this summer, removing invasive species on nearly 100 acres. All of this work contributes to the management goals of the natural area. A large scale project to restore floodplain habitat in the bottomlands to benefit salmon is in the planning stages, which is set to begin construction in 2010.



Oaks Bottom

Grey to Green: Culvert Removal Targets
Identifying and replacing culverts that prevent fish passage will improve aquatic habitat connectivity and reduce the risk of flooding and erosion. In the past decade, the city has replaced eight culverts to improve the environment and allow salmonid access to miles of habitat. Over the next five years, the Grey to Green Initiative will fund the replacement of eight additional culverts that block fish passage.

Performance Measures

Protected 1.29 acres of floodplain property under the Johnson Creek Willing Seller Program

Managed 1,900 acres of natural areas through Parks and Recreation's "Protect the Best" Program

Addressed 1,785 complaint calls to the 24 hour spill protection hotline

Conducted 13,042 erosion control-related inspections of private construction sites

Responded to 303 erosion control cases

Strategy 4: Protection and Policy

The stormwater management, revegetation, and habitat enhancement strategies address symptoms of watershed problems with restorative actions. More important to long term watershed function, however, is instilling practices that protect existing natural resource assets that are in good condition. Protecting watershed functions is more cost-effective than restoring them, and policies that do so have lasting impacts on how the city plans for future development. The following examples illustrate the protection and policy strategy from 2007-2008.

The Conservation of Ross Island

The Portland community celebrated the donation of 45 acres of Ross Island for conservation in 2007. The city has been in negotiations with Dr. Robert Pamplin Jr., owner of Ross Island Sand and Gravel, a mining company that has operated on the property for over 75 years.

Ross Island lies within the Willamette River one mile south of Portland's city center, and offers some of the highest quality natural area habitat within the city limits. Its proximity to the South Portland Riverbank and the Oaks Bottom Natural Area makes Ross Island an important habitat and a valuable acquisition for Special Status Species, habitat connectivity, conservation, and recreation.

The city received strong support from the Urban Greenspaces Institute, Willamette Riverkeeper, and the Portland chapter of the Audubon Society. Thanks to an additional \$100,000 grant from Dr. Pamplin, Portland Parks and Recreation will begin to address invasive plants in the island in the fall of 2008. The city will also develop a long-term plan to ensure preservation of the Ross Island complex, which will include habitat enhancements as well as limited public access.



Ross Island

Citywide Tree Policy Review and Regulatory Improvement Project

Trees play a major role in keeping Portland clean, green, and healthy—they intercept rain and snow, help filter stormwater runoff, improve air quality, provide shade to keep streams cool, and furnish habitat for wildlife. However, the city's current regulations are complex, difficult to implement, and do not ensure consistent tree preservation or re-planting to replenish the urban forest.

The City's Urban Forestry Action Plan directs the Bureau of Planning to work closely with the Bureaus of Parks and Recreation, Development Services, Environmental Services and Transportation to review and update the city's tree policies and regulations. Project goals are:

- Ensure that the city codes help meet the Urban Forest Management Plan goals and targets
- Provide clarity and consistency between city codes that regulate trees
- Inform and support long-range policy development through the Portland Plan
- Improve implementation of tree preservation requirements
- Foster a practicable enforcement program

The Citywide Tree Project is a multi-bureau effort to examine the city's current policies and regulations relating to trees. This two-year project involves extensive collaboration so that city staff and community stakeholders have a clear, comprehensive understanding of the issues from various perspectives. The interbureau project team is meeting with a stakeholder group representing a wide range of community interests to explore the issues and evaluate potential solution options. The team is meeting with other jurisdictions to learn about their rules and programs. More information about the Citywide Tree Project is available at www.portlandonline.com/planning/index.cfm?c=46921.

The 2008 Annual Report for the Urban Forestry Management Plan is available at www.portlandonline.com/shared/cfm/image.cfm?id=196613.

Waterleaf Property Aquisition

Portland Parks and Recreation, Environmental Services and Portland's Metro Local Share acquired nearly 27 acres of undeveloped land in the Johnson Creek Watershed - the Waterleaf property. The nonprofit Trust for Public Land facilitated the acquisition agreement from Riverside Homes Inc., which had planned to use the property for a large housing development. The purchase will maintain the site as a natural area, which will expand park land and help protect wildlife habitat and water quality, and prevent new impervious surface and stormwater runoff in east Portland. The Waterleaf property is part of a larger acquisition strategy in outer southeast Portland that may eventually connect Powell Butte Nature Area to Clatsop Butte.

"make it easy to do the right thing"

Grey to Green:
Land Acquisition targets
Environmental Services' Watershed Services Group will research lands for purchase, establish funding partnerships and purchase arrangements, and negotiate purchases. Priority areas will include undeveloped natural areas with functioning watershed processes whose development could cause negative impacts to watershed health, such as erosion and flooding, and degraded water quality and habitat disturbance. The Grey to Green goal is to purchase 46 acres of natural areas during 2008-2009 towards a total of 419 acres in five years.



Performance Measures

Inspected all 177 public stormwater facilities, cleaned 41 and repaired 14 facilities

Inspected 811 private stormwater facilities

Swept debris from 2,085 miles of Portland streets

Cleaned 89,886 linear feet of ditch and 3,836 linear feet of culverts

Repaired or constructed 319 inlets, 1800 linear feet of inlet lead, and 4,130 linear feet of culvert

Strategy 5: Operations and Maintenance

Effective operations and maintenance practices are critical to watershed health. The city operates and maintains a wide range of infrastructure to protect public health and safety, water quality, and property. It is important to ensure operations and maintenance activities not only keep those assets in good working order, but also protect water quality and habitat functions. The PWMP recommends this strategy in order to maximize efficiency, minimize waste, and prevent the pollution of our watersheds. The following are significant operations and maintenance strategy accomplishments over the 2007-2008 reporting year.

Portland Public Schools Stormwater Facility Maintenance

Over 30 schools in the greater Portland area have stormwater facilities, providing not only great stormwater management benefits but unique education opportunities. With limited resources, however, the maintenance of these facilities remains challenging. Further, overgrown vegetation in these facilities seems unkempt - it's important that they're properly maintained to meet both functional and aesthetic standards for the surrounding community. In April 2008, Environmental Services awarded Portland Public Schools a grant through the Watershed Investment Fund (WIF; see 2006-2007 PWMP Annual Report) to explore and evaluate multiple maintenance approaches. The methods, varying from classroom exercise to maintenance crews, are helping city planners understand the full amount of effort needed to keep these facilities managing stormwater as well as fitting within the schools' aesthetic and educational goals. More information on this work is available at www.facilities.pps.k12.or.us/docs/pg11028

Prioritizing Preventative Maintenance

The city implements operations and maintenance practices for public streets, sewers, and other facilities to remove and prevent pollutant discharges into nearby surface water and groundwater. Environmental Services and the Bureau of Transportation Maintenance are charged with making sure that these facilities operate effectively citywide by sweeping streets, cleaning out sumps and catch basins, and inspecting public stormwater facilities.

For the small amount of preventative maintenance provided each year, Environmental Services watershed staff is trying to direct maintenance towards targeted areas based on watershed health criteria. In 2007-2008, Environmental Services took a huge step forward by mapping watershed maintenance priority areas for use by inspection and maintenance crews. The maps identify target areas based on levels of pollutant load, impacts to floodplain, Endangered Species Act priorities, and an area's proximity to water bodies for stream discharges. This data will lead to ranking certain facilities a low, medium or high priority for future preventative maintenance efforts. The resulting tools will help redirect the limited resources for preventative maintenance into the higher priority areas. By the end of calendar year 2008 these rankings should be established and reflected in the work orders issued for maintenance crews.



maintenance crew



Mt Tabor School parking lot swales

*“maximize efficiency,
minimize waste
and prevent pollution...”*

Performance Measures

13 stewardship grants totaling \$60,200

26,371 students reached in classroom exercises, field activities, and assembly program

40,146 participants in Naturescaping workshops, stewardship projects, tours, and community outreach events

10,569 visitors to the Community Watershed Stewardship Program website

102,000 visitors to Sustainable Stormwater Management Program website

67,000 visitors to the Clean River Rewards website

Strategy 6: Education, Involvement, and Stewardship

The PWMP acknowledges that community involvement is not only significant, but necessary to sustain the city watershed management efforts. An informed and engaged public is aware of watershed management needs and has the capacity to take responsibility for them. By providing opportunities for education, public involvement, and stewardship, the city broadens its resources to keep the watersheds healthy. The city promotes community outreach and education throughout the year to build awareness about watershed issues, and provides numerous stewardship opportunities to instill a sense of ownership. Whether through technical support, public events, workshops, incentives or grants the goal remains to foster partnerships between Portland residents, businesses, and the watershed in which they live.

Outreach and Education Highlights

Clean River Rewards Workshops

The Clean River Rewards and Stormwater Retrofit Workshops explain how to manage stormwater on private property and are for property owners who currently do not manage stormwater on-site or who want to expand their existing stormwater management. Over 3,600 people attended the program's 40 events in 2007-2008.

Clean Rivers Education Program

Environmental Services also offers classroom lessons to schools, community organizations, and watershed councils. The Clean Rivers Education Program provided a variety of school programs, including classroom exercises and natural area restoration service projects that reached 26,371 students in 2007-2008.

Portland Ecoroof Seminar Series

In spring 2008, Environmental Services sponsored a free Ecoroof Seminar Series. Over 500 people attended the five seminars. The series will repeat beginning in October 2008. The purpose of the seminar series is to build community capacity in preparation for increased resources from the Grey to Green Initiative. Presentation materials and additional information are available at www.portlandonline.com/bes/index.cfm?c=46446&a=196096.

Tabor to the River: Brooklyn Creek Basin Focus Groups

As part of the Brooklyn Creek Basin Program, the Lost Creeks and West Side Streams watershed team held multiple focus groups with residents of Southeast Portland to discuss upcoming projects as part of Tabor to the River: Brooklyn Creek Basin Program. The research included a series of focus group meetings in the Brooklyn Creek Basin area of southeast Portland to assess residents' impressions of sustainable stormwater management. As a result of these meetings, staff determined appropriate outreach methods to effectively and efficiently work with the community on these projects.

ReTHINK and the Build it Green! Tour of Homes

Environmental Services and the Water Bureau sponsor the Office of Sustainable Development's two annual green building events, ReTHINK and the Build it Green! Tour of Homes. Both the classes and the tour represent projects that practice water conservation, Naturescaping, rainwater harvesting and sustainable stormwater management. An average of 70 people attend each ReTHINK class and over 1,200 attend the Build it Green! Tour annually. More information about these events is available at www.portlandonline.com/losdl/index.cfm?c=41624.

East Side CSO Prompts CBO Grants

In November 2007, the Portland City Council authorized spending \$1.77 million on community projects to benefit neighborhoods close to the East Side Big Pipe Combined Sewer Overflow (CSO; see 2006-2007 PWMP Annual Report) projects. The city created the Community Benefit Opportunity (CBO) Program to add amenities to neighborhoods affected by CSO construction.

East Side CSO construction affects 11 neighborhoods between SE 17th and McLoughlin Boulevard and the Columbia Boulevard Wastewater Treatment Plant. Community groups and citizens in those areas nominated 38 projects. A citizen's advisory committee reviewed the proposals, and worked with Environmental Services to recommend 21 projects for funding. Projects include bank restoration along the Willamette River, street tree planting, sustainable stormwater management facilities, trail access, and community gardens. Additional information is available at: www.portlandonline.com/csol/index.cfm?c=30919.

CWSP Receives Carter Award

Outreach and education create awareness, but programs like the Community Watershed Stewardship Program (CWSP) give neighbors, schools, and organizations a chance to develop and implement their own projects. CWSP is a partnership between Environmental Services and Portland State University (PSU). Since 1994, CWSP has granted more than \$500,000 to 150 community projects. These funds were matched by more than \$2 million worth of donations of services, materials and volunteer time. To date, 28,000 people have donated 274,000 volunteer hours, planted 82,000 native plants and trees, restored 43 acres of riparian and upland habitat, and enhanced 12,000 feet of streams as a result of CWSP grants.

This year, CWSP was awarded the first United States National Jimmy and Rosalynn Carter Partnership Award for Campus Community Collaboration. Jimmy and Rosalynn Carter presented the award to Environmental Services and PSU staff on June 4, 2008 at the World Congress Center in Atlanta, Georgia. It honors one recipient per year whose program addresses critical areas of public need undertaken by a college or university in partnership with a community group.



CWSP group and partners with President and Mrs. Carter

Within each of Portland's six watersheds comes a specific set of characteristics outlined in the watershed characterizations developed prior to the PWMP. Each also has specific watershed health issues, such as different water quality problems. The city uses different combinations of PWMP strategies to address these issues and priority areas. This section of the report highlights actions taken within each watershed that use the watershed approach to address these priority areas.

Columbia Slough

FY 08 Highlight: Friends of Trees planted 650 street trees in Columbia Slough watershed neighborhoods during 2007-2008.

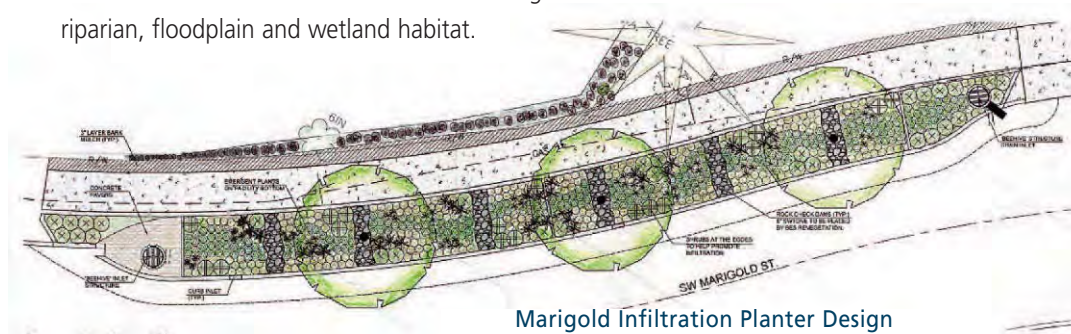
FY 09 Priority: Designs for the Columbia Slough Confluence Habitat Enhancement project will be completed. The project will install large wood structures to provide hiding, feeding, and resting places for migrating salmon and birds.



Fanno and Tryon Creeks

FY08 Highlight: As part of WIF, the city completed the design for the SW Marigold Infiltration Planter green street facility near the headwaters of Tryon Creek. Construction is scheduled for fall FY09.

FY 09 Priority: Construction of the Tryon Creek Iron Mountain Streambank Restoration and Sewer Maintenance project will be completed in FY09. The project includes sewer maintenance and stream restoration components within 300 feet of stream habitat and 2.5 acres of surrounding riparian, floodplain and wetland habitat.



Marigold Infiltration Planter Design

Johnson Creek

FY 08 Highlight: Upon completion of the floodplain restoration work at the Schweitzer Restoration Area (formerly known as Brownwood), the city installed a public viewpoint of the site from the Springwater Corridor Trail, adorned with mosaic tiles of native plants and animals along the viewpoint walkway. The site was dedicated to honor the Schweitzer family, 50-year residents of part of the site.

FY 09 Priority: The pre-design process and associated public comment process have been completed for the East Lents Floodplain Restoration Area. The design process will be completed in 2008-2009.



Schweitzer Restoration



Lost Creeks and Westside Streams

FY 08 Highlight: The Hawthorne Hostel Stormwater Demonstration Project began construction in July and will be completed in fall 2008. The youth hostel project not only manages over 40,000 gallons of stormwater on site annually, but also provides a unique educational opportunity to young travelers and local residents alike about the benefits and success of sustainable stormwater projects.

FY 09 Priority: Environmental Services' Lost Creeks and Westside Streams Watershed Team is identifying opportunities to protect and improve conditions in priority subwatersheds within their Plan Area. The team is currently collecting and analyzing information in the Marquam-Woods, Carolina-Terwilliger and California subwatersheds in southwest Portland, meeting with the key stakeholders to help identify potential priority areas and project sites.



Hawthorne Hostel stormwater project

During 2007-2008, the city made significant progress in executing elements of the PWMP Implementation Plan. The Implementation Plan guides how individual projects that are intended to help reach the watershed goals and objectives are evaluated, selected, measured, monitored, tracked, funded, reported and communicated. The Implementation Plan also outlines a number of steps to insure that our actions are efficiently and effectively contributing to watershed improvement goals. Further, it provides the needed evaluation and tracking tools necessary to identify watershed problems, learn from our efforts to solve these problems, and adapt so that we are always improving how we find these solutions. The milestones below are major achievements during 2007-2008 in determining how PWMP actions will be carried out.

Prioritizing Watershed Actions

The PWMP Implementation Plan identifies the need for a tool to help prioritize watershed projects to select those that produce the greatest ecological benefits with available resources. This is accomplished by measuring what each project will individually contribute toward a defined environmental target, allowing a comparison between projects by watershed benefit and estimated cost. In the last year, Environmental Services tested the tool on a suite of watershed projects. Testing allowed the project team to evaluate and improve the tool, and begin the first formal prioritization of projects at the onset of the 2009 fiscal year.

Tracking Watershed Actions

With the watershed approach, the city will continue to initiate large, comprehensive projects that weave watershed improvements into city policy and planning. In advance the city has developed a data system to help track the progress of watershed actions and how they contribute to PWMP goals. The PWMP Watershed Services User Program (WASUP) is intended to address several needs for PWMP implementation, including project planning, prioritization, tracking performance measures, reporting, and presentation. In 2007-2008, the structure for WASUP evolved from a needs assessment and survey throughout the city's Watershed Services Group, within Environmental Services. Data entry has started, and by the end of 2008 the system will be able to present summary data and begin to connect the cumulative benefits of individual actions to the goals of the PWMP. The new WASUP will enable us to view and characterize all of our projects, by monitoring cost, effectiveness, and viability.

Integrating the Watershed Approach into Other Bureaus

In order for the PWMP to be effective, watershed health must be considered a priority for all city bureaus and their decisions. Although watershed work has been typically led by Environmental Services, the PWMP strives to integrate watershed goals within the development and maintenance of city infrastructure, planning, and design. A great example of this integration is the Local Improvement District (LID) project at SW Texas Avenue. The Portland Water Bureau, Office of Transportation, Environmental Services, and local residents combined efforts to complete a complex street improvement, stormwater management, and water main replacement project. As part of the LID, the residents of the street contributed roughly 1/3 of the project budget, integral to the project being completed. More information on this project is available at www.portlandonline.com/transportation/index.cfm?c=41112&a=104199.

Accelerating Watershed Actions

As we approach a second year of developing the watershed implementation process, including tracking and prioritization work, we continue to implement projects in order to study and adapt methods so that they are most efficient and effective. This is a critical phase in the watershed recovery process. In the first two years since the adoption of the PWMP, we have developed policies, codes and procedures to guide planning and development with the watershed approach. With these tools in place, we have confidence that our actions will result in the watershed benefits needed. Inter-bureau teams are now making it easier and simpler to identify projects that meet multiple objectives. Together we are busy developing a way to convert the outcomes of our actions into measurable progress towards the PWMP watershed health goals.

Grey to Green: Systems Management
Environmental Services' Watershed Services Group will lead efforts necessary to meet the aggressive Grey to Green Initiative goals. This effort includes coordinating overall Grey to Green operations; developing a citywide program to enhance the street and yard tree canopy; and providing management, including budget, project tracking, and communications.



Integrating Watershed Goals with City Comprehensive Planning

Over the next three years, the Bureau of Planning will be leading a citywide team to update the Comprehensive Plan and the Central City Plan in an effort called the Portland Plan. The Portland Plan will include policies and actions that will guide Portland's growth and development over the next few decades towards sustainability, livability, and community character. As the city works to update these plans for the first time since their adoption in the 1980s, environmental planners are re-assessing how the four PWMP watershed goals are represented in citywide planning efforts. Through the PWMP we now understand that sustainable watershed planning requires a balance of city livability, economy, and sustainable growth. City planners will be challenged to integrate PWMP goals into long-term citywide plans such as for transportation, capital improvements, zoning and land use, so that the watershed approach is maintained.

Aligning Local Strategies with Regional Recovery Planning

Although salmon have been federally protected as threatened species in the City of Portland since 1998, 10 years later there is still no recovery plan. As part of the regional, state-federal effort to develop a salmon recovery plan for the Lower Columbia River salmon populations, the Science Fish and Wildlife Program and the Portland Water Bureau have been representing the city in the development of this plan. Within the next year, the city will be finalizing the recovery plan that catalogs existing efforts to help protect and recover federally listed salmon, as well as identify areas where we need to focus on "limiting factors " (that is, those things that salmonids need to survive, such as cool water) to improve conditions for these keystone species. Many of those areas are already being addressed through stormwater efforts, land acquisition and culvert passage upgrades in the city's Grey to Green initiative, as well as the Water Bureau's Habitat Conservation Plan for the Bull Run Watershed. Once adopted, the recovery plan will help direct available salmon monies to recovery based efforts identified in the plan.

Anticipating Implementation Needs

As the city prepares for an accelerated implementation phase, it's important to acknowledge the remaining uncertainties regarding project operation and maintenance. Since implementation will increase rapidly, and operations and maintenance needs are still uncertain, the city will need to take the same integrated approach when anticipating long-term needs for the increased capacity. A sustainable, long-term asset inventory and maintenance strategy will allow city bureaus to collaborate and reduce costs so that these efforts can be sustained.

Developing a Monitoring Strategy

The Watershed Services Group of Environmental Services has monitored many different watershed health parameters, and at various frequencies over the last two decades. Typically, however, monitoring planning has been done on a project by project basis without a broader context of watershed health goals and objectives. In addition, such monitoring has been performed without specific guidance as to how those activities are selected, budgeted and coordinated, or how the resultant information is collected, stored, analyzed or used. Over the next few years, Environmental Services will be developing a strategy to address these needs. The broad context will be provided by this strategy, and will guide the selection of monitoring projects and priorities.

Assessing Stream Impacts

There are many factors to consider in managing watershed resources. While efforts like the ones discussed in this annual report are producing benefits, there are always inputs from urban activities that can degrade watershed health. Further, while we can monitor and track individual efforts, streams, facilities, trees, etc., it's more difficult to monitor the entire watershed and answer the most important question of all: is our plan working to improve overall watershed health? The city is enacting tools that will help answer this question.

Eventually our collective actions will be evaluated in terms of better water quality, habitat, hydrology, and biological communities. The developing Index of Biological Integrity for Portland streams will help assess stream health as it relates to greater watershed function. It combines several biological metrics from stream or watershed environments that can indicate the extent of human impacts. In 2009, five years of data will be analyzed to show to what extent Portland stream health is improving, holding steady, or declining.

Continuing Implementation Funding

Since 2006, the Watershed Investment Fund has provided additional, dedicated funds to seize innovative partnership- and resource-leveraging opportunities that achieve the greatest benefit to watershed health. Projects that improve hydrologic and habitat function in the main stem Willamette and major tributaries of Johnson, Fanno, Tryon creeks and the Columbia Slough are funded through this program. With the advent of the Grey to Green Initiative, focus on watershed implementation has received an extra boost, necessary for addressing urgent needs in our sewer and stormwater systems in a manner that also uses natural systems to guide potential solutions.

In FY08/09, work will be focused on building partnerships with other city bureaus and the community to green the city's approach to the urban problems of water quality, hydrology, and habitat. Doing so will take an immense amount of collaboration to meet each other's goals in the most green and sustainable manner. Leveraging each other's efforts in this green initiative will result in cost savings and a boost to our green economy as we solve problems not only of stormwater management, but also of energy efficiency, urban habitat enhancement, community livability, and air quality. Working outside bureau-specific projects to do multi-objective projects that have significant public exposure is a challenge worth taking.

Is a healthy urban watershed possible? By implementing the PWMP and taking the watershed approach, the city has the tools to make clean and healthy watersheds not only a possibility, but a reality. In the first two years since the adoption of the PWMP, the city has developed tools to improve the efficiency and effectiveness of watershed improvements. At the same time, we've directed our resources towards projects and programs that address systemic watershed problems. To that end, the city has already begun to learn from the watershed approach. In order to build a positive relationship between our city and its watersheds, we must continue to evaluate the impacts from development and growth and adapt.

The City of Portland is expected to face significant growth and development in coming decades, and we must move quickly to assure that our planning can effectively manage the associated challenges ahead. We can only assume that new problems will emerge, and by addressing only the symptoms we'll be vulnerable to continued watershed degradation. The PWMP allows the city to go beyond examining only the symptoms, and rather identifies problems as indications of a system out of balance. By prioritizing improvements that achieve multiple benefits to watersheds and infrastructure, we can cost-effectively meet our regulatory obligations while also achieving a net benefit to the long-term health and livability of our city. This explains the significance of the Grey to Green Initiative: we have an opportunity to try more, do more, and learn more than we ever have in the past. The result will be a big step forward towards more healthy urban watersheds for all Portland residents.





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This Annual Report is available on CD by request.



2007 - 2008 ANNUAL REPORT